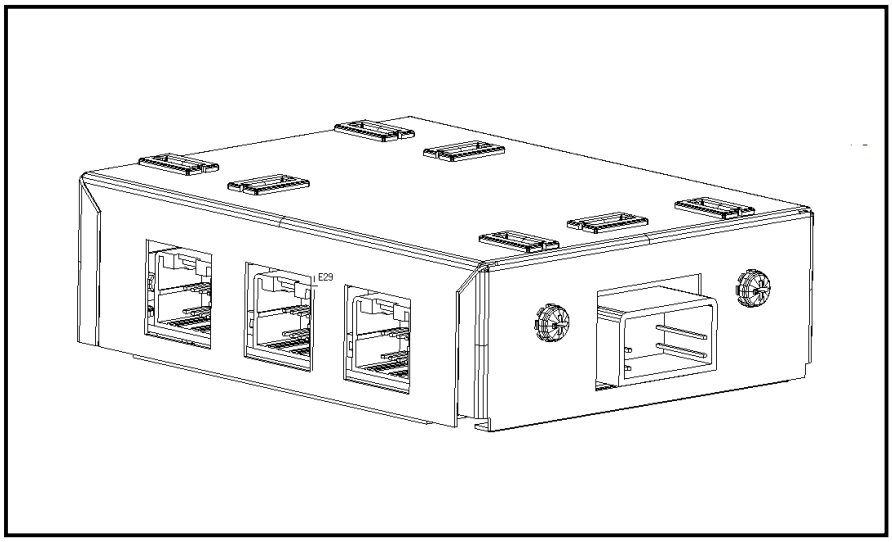
Multimedia Service Manual

for the Control Module used on the Renault Rear Seat Entertainment System

Rear Seat Entertainment System Control Module

for the Renault Scenic, Laguna and Espace



Control Module

Part Number 4035241

About this Document	
Document no.	30-900-00015
Produced by:	Visteon Technical Service Operations
Download from:	http://euro.evisteon.com
Issue	**Remarks**
2002-11-28	First Issue
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A. Initial Inspection and Test.

1. Read the dealer fault report.
2. Examine the module. Note any bent or missing connector pins or other obvious damage.
3. Plug the module into the test kit and test as follows. Note any faults found.

Step	Procedure	Check that . .	Verification
1	Connect the control module to the test kit. Plug the output from the DVD into CN1 (see figure 1) on the control module. Connect a 12.5 V DC supply to the permanent and ignition inputs of the test kit.	The DVD switches on.	Module power circuits and regulator.
2	Aim the remote control at TFT screen A and press 'POWER'	Both TFT screens come on	Control, power & IR. Transmission, backlight & screen power supplies to the TFT monitors
3	Press 'MENU' on the remote. Navigate to 'MEDIA SELECT' then press 'ENTER'. Select DVD and press ENTER again.	The menu appears on TFT A.	Menu chip.
4	Aim the remote at TFT screen B and select DVD as per step 2 above.	The menu appears on TFT B	Control power to TFT B
5	Insert a DVD disk into the DVD player.	Check that the DVD displays on both screens and there is sound on both channels.	Video and Audio circuits
6	Aim the controller at TFT A, press Stop, wait and then press PLAY.	The DVD pauses then continues to play each time.	IR coms
7	Aim the controller at TFT B and press Menu. Press Stop and then PLAY as above.		
10	Plug the DVD output into CN2. Use the remote to select AUX 1 on both screens.	The picture from the DVD appears on TFT A and TFT B as each selection is made and there is sound on both channels.	Menu chip, TFT screens
11	Plug the DVD output into CN3. Use the remote to select AUX 2 on both screens.		
17	With the remote aimed at Screen A select COLOUR on the DISPLAY menu.	Colour scale appears on screen	Colour adjustment
18	Vary intensity from high to low colour. Set back to mid-range.	Colour changes from black & white to extreme colour.	
19	Select BRIGHTNESS. Vary intensity from high to low then to mid-range.	Brightness changes from dark to bright.	Brightness adjustment
20	Select CONTRAST. Vary intensity from high to low contrast then back to midrange.	Contrast changes from diffuse to sharp.	Contrast adjustment
21	Press the OFF button on the remote.	Screens become dark, picture and illumination ceases.	Power switching
22	Turn off the ignition switch	After 5 min the power switches off.	Auto-off feature
23	Unplug the control module.		

4. If the unit is faulty proceed to the next step.

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B Opening the Control Module

CAUTION: Observe anti-static precautions when handling the PCB.

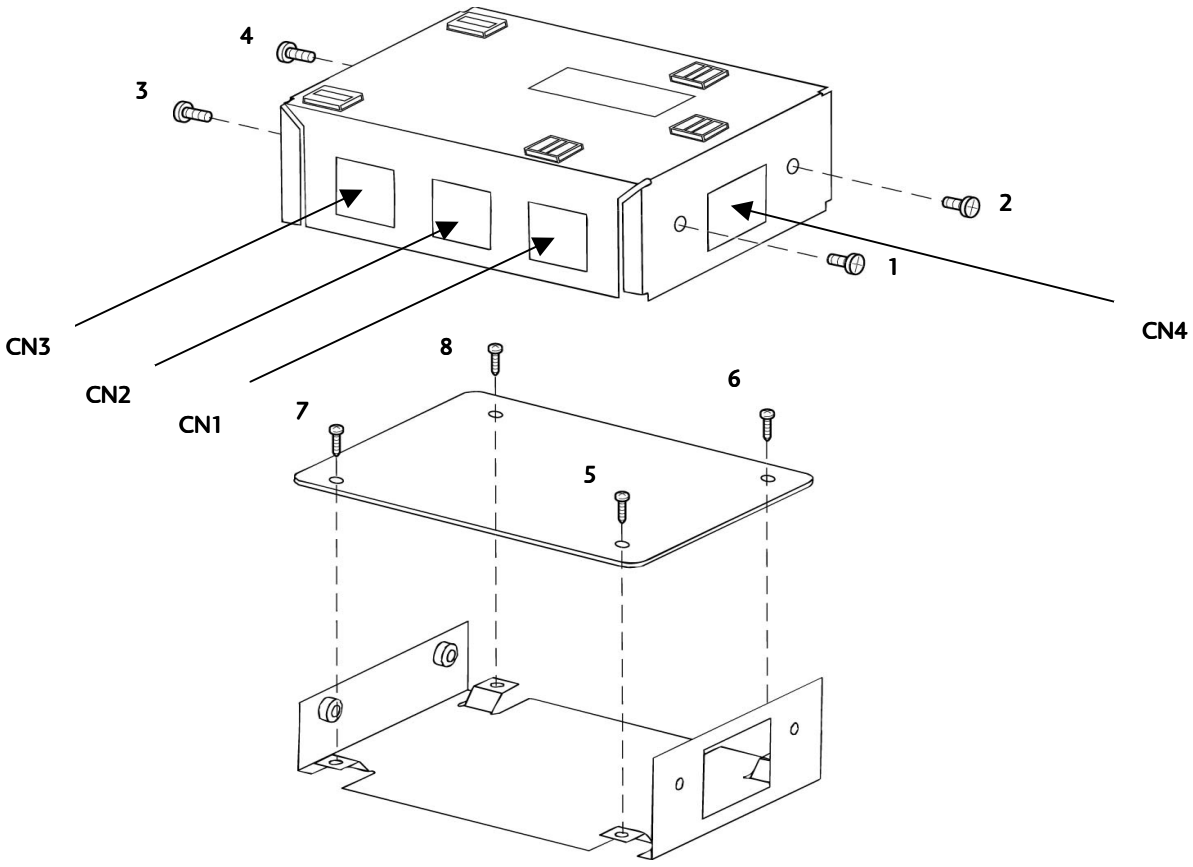

Figure 1 Control Module Housing

1. Loosen screws 1 to 4 and remove the control box lid.
2. Remove screws 5 to 8. and separate the PCB from the control box base.
3. Visually inspect the components for obvious signs of mechanical or electrical damage.
4. Proceed to section C.

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C. Diagnosis and Repair.

1. Connect the open control module to the test kit.
2. Connect the 12.5 V power supplies to the test kit.
3. Compare the symptoms observed under A. Initial Inspection and Test with the symptoms listed below to locate the components likely to be faulty and effect the necessary repairs.

Symptom	Investigation	Corrective Action	
Media device such as DVD or TV missing from OSD Menu	Check for <1 V at IC1 pin11,12	If OK go to next line	Replace IC1.
	Power OFF supply for 5 Seconds	Repower system and recheck fault.	
Media Device Switching OFF/ON continuously, video signal present	Check for <0.5 V TR3 collector	If OK go to next line	Check TR3, D1, IC1, C3, C26, C36, C37 in turn. Replace faulty components.
	IC11 defective		Replace IC 11.
Audio Fault No sound both left and right	Check Audio route in logical manner IC7/19 > IC1 > IC2/5 > IC3/4	If OK go to next line	Replace faulty components.
	Video OK?	Check as No Colour / poor /no image – NO audio OSD OK – See "Image Faults" below.	
		If OK go to next line.	
	Check IC1, IC3, IC4.defect -		Replace defective components.

Symptom	Investigation	Corrective Action	
Power Faults			
No Power / No LCD	Check 12 V on F1	If OK go to next line	F1 Defect - check for S/C on output. Replace defective components.
	Check 5 V/12 V IC 17	If OK go to next line	IC 17/D3 Defective or S/C on output. Replace defective components.
	Check IR sig. on IC11 pin 8	If OK go to next line	Check IC12/13/14. Replace defective components.
	Check Xtal sig. on IC 11pin 6, 7	If OK go to next line	XTAL or IC11 Defect. Replace defective components.
	Check < 0.6 V IC 11tPin 2	If OK go to next line	TR6 defect IC11 Defect. Replace defective components.
	Check 5 V IC 16 Pin 2	If OK go to next line	TR6 defect, IC16. Replace defective components.
	Check for PCB damaged pins . Replace defective components.		

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Symptom	Investigation	Corrective Action	
Image Faults			
LCDs on. No OSD on <u>one</u> LCD	Is <u>color</u> image shown on LCD?	If yes go to next line	TR1/2, IC8 Defective CN4 damaged. Replace defective components.
LCDs on. No OSD on <u>both</u> LCDs	Check Waveform IC11 Pin 9,10	If OK go to next line	IC11 Defect - eeprom corrupt. Replace defective components.
	Check Waveform IC8, 9 Pin 7	If OK go to next line	IC 8/9 Defect. Replace defective components.
	CN4 damaged - Check For PCB Damage. -Replace defective components.		
No colour, poor /no image – No audio, OSD OK	Check Waveform IC1 pin 1/8	If OK go to next line	CN1/2 / test Media / looms. Replace defective components.
	Check 9V IC18 pin 3	If OK go to next line	IC18 Defect - check for S/C on O/P. Replace defective components.
	Check Waveform IC1 pin 33/34	If OK suspect Defective IC / inspect soldering or PCB damage. Replace defective components.	
No colour, poor /no image – audio OK: All 3 Inputs, one or both LCDs	Is OSD OK?	If OK go to next line	Go to image Faults – No OSD above.
	Check Waveform IC1 pin 1,8,15	If OK go to next line	IC v / defect IC1 x S/C. Replace defective components.
	Check Waveform IC1 pin 44,53	If OK go to next line	Defect IC1, C26/36/37-PCB O/C. Replace defective components.
	Check Waveform IC10 pin 7,8	If OK go to next line	IC10 Defect Replace defective component.
	Check Waveform CN4 pin 8/18	If OK go to next line	R35, 36 – PCB Defect. Replace defective components.
	Check Correct Values R35/36 - Reg supplies 5/12/Gnd.		
No colour, poor /no image – audio OK. One input, both LCDs	Check Waveform CN1/2/3 pin7	If OK go to next line	Check connector / test Media/looms. Replace defective components.
	Check Waveform IC1 pin 44, 53	If OK go to next line	Defect IC1, C26/36/37-PCB O/C. Replace defective components.
	Check Waveform IC10 7, 8	If OK go to next line	Recheck Fault symptoms
	Check test looms	Check Reg supplies 5/9/12/Gnd. Replace defective components.	

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	Symptom	Possible Cause	Probable Diagnosis
Power Control	Control Module Power Failure.	Micro defective.	IC11 micro crashed
			XT1 inoperative
			TR5 collector output failed low (reset).
			D3 failed o/c.
			IC 17 (5 V)
		Power supply circuit not switched on	TR5 failed low
			IC16 switch inoperative
			TR6 output failed low
			Dry joint at IC11 pin 2.
			Dry joint or broken track between IC16 pin 23 and TR6 collector.
			D2 failed s/c
		+5 V supply to LCD interface board IR sensor missing	R55 & R56 o/c or missing
			C77 & C76 s/c to gnd.
		IR detection circuit failure.	IC12 internally defective holding 14 high.
			CN3 pin 3 or CN4 PIN 4 or CN4 pin14 gnd.
			C94 s/c to gnd
			LK1 missing (no +5V)
			R42 missing
			IC14 faulty
			C50 s/c to gnd
			IC13 faulty
			R59, R48 OR R49 o/c.
	Control module fails to detect media device	Micro does not detect that the media1 or media 2 sense lines are grounded	R63 or R54 o/c
			IC11 pin 11 or 12 dry-jointed
			Poor continuity between CN1 pin 2 and IC11 pin 12 and CN2 pin 2 and IC11 pin 11
		Micro does not detect either Media1 or media 2 sense lines	Media device connected after turning on power supply to the control box.
Video	No video on left screen, audio OK	No video output from IC1 circuit area	C11 or C12 or C13 o/c
			IC1 defective
			Dry or open joints on IC1 video input pins 1, 8, & 15 or output pins 44 & 53.
		No video output from IC10 circuit area	C45, C48, R36, L9 o/c
			IC10 defective
			Dry/ open joints on IC10 pins
	No video on right screen, audio is ok	No video output from IC1 circuit area	C11. C12, C13 o/c
			IC1 defective
			Dry open joints on IC1 video input pins 1, 8 & 15 or output pins 53 & 44.
		No video output from IC10 circuit area	C44, C47, R35, L8 o/c
			IC10 defective
			Dry/ open joints on IC10 pins
	Poor quality video on left and right screens, audio OK	Video input signal not terminated properly.	R1, R2, R3 dry joint/ o/c
			RV1 or RV2 or RV3 partial short
			C11, C12, C13 o/c
	Poor quality video on right screen, audio OK	Video output signal not terminated properly	C44, C47, R35 o/c or dry joint
			RV18 partial short
	Poor quality video on left screen, audio OK	Video output signal not terminated properly	C45, C48, R36 o/c or dry joint
			RV15 partial short
	No video picture, on either screen, DVD controls working	No IIC clock signal to LCD screens	C80 s/c to gnd.
			IC9 pin 7 failed, open
			R31 open, dry-jointed

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OSD	Loss of control of OSD functions e.g. contrast, colour, etc. . on right screen.	IIC control signals to right LCD screen defective	C78 s/c to gnd
			IC8 pin2 failed, open
			IC9 pin 7 to CN4 pin 2 open, dry-jointed
			IC11 pin 16 output failed, open
			R28 open, dry-jointed
			TR1 failed, open
	Loss of control of OSD functions e.g. contrast, colour, etc. on left screen	IIC control signals to left LCD screen defective	C79 s/c to gnd
			IC8 pin7 failed, open
			IC9 pin7 to CN4 pin12 open, dry-jointed.
			IC11 pin 14 output failed or open
			R29 open, dry-jointed
			TR2 failed, open
DVD	DVD player does not respond to remote control	IR signal not being relayed from the control module	IC11 pin19 open, dry jointed, output failed
			R57 open, dry jointed
			D5 failed s/c to gnd or to 5 V
			L2 open, dry-jointed
			CN1 pin5 dry-jointed
Audio	Left side audio missing or out of spec, video OK: left and/or right screen	Failure of any left-side audio input circuit associated with CN1	C5, C82 o/c or dry joint
			R4 terminator, R10, R75, R77 o/c or dry joint,
			IC7 failed or not receiving 9 V supply
			IC1 partially defective
			Dry joint on IC1 pin 43 or 52.
		Failure of any left-side audio input circuit associated with CN2	C6, C86 o/c or dry joint
			R5 terminator, R11, R80, R83, o/c or dry joint
			IC7 failed or not receiving 9 V supply
			IC1 partially defective
			Dry joint on IC1 pin 43 or 52.
		Failure of any left-side audio input circuit associated with CN3	C7, C88, o/c or dry joint
			R6 terminator, R12, R86, R87, o/c or dry joint,
			IC19 failed or not receiving 9 V supply
			IC1 partially defective
			Dry joint on IC1 pin 43 or 52
	Right side audio missing or out of spec, video OK: left and/or right screen	Failure of any right-side audio input circuit associated with CN1	C8, C83 o/c or dry joint
			R7 terminator, R13, R78, R84 o/c or dry joint,
			IC7 failed or not receiving 9 V supply
			IC1 partially defective
			Dry joint on IC1 pin 45 or 54
		Failure of any right-side audio input circuit associated with CN2	C9, C85 o/c or dry joint
			R8 terminator, R14, R81, R83 o/c or dry joint
			IC7 failed or not receiving 9 V supply
			IC1 partially defective
			Dry joint on IC1 pin 43 or 52
		Failure of any right-side audio input circuit associated with CN3	C10, C87, o/c or dry joint
			R9 terminator, R15, R83, R85, R88, o/c or dry joint
			IC19 failed or not receiving 9 V supply
			IC1 partially defective
			Dry joint on IC1 pin 43 or 52

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Audio	Left side audio on left screen missing or out of spec., video OK.	Failure in left side audio processing within the left screen audio processor/amplifier circuit	C25, C29 or C35 o/c
			C32 failed s/c
			IC4 pin 7 open
			IC4 partially defective
			IC5 pin 2, 12, 13 or 19 open (no IIC)
			IC5 partially defective
			R26 or R20 o/c
	Right side audio on left screen missing or out of spec., video OK.	Failure in right side audio processing within the left screen audio processor/amplifier circuit	C24, C31 or C34 o/c
			C33 failed s/c
			IC4 pin 6 open
			IC4 partially defective
			IC5 pin 1, 12, 13 or 18, open (no IIC)
			IC5 partially defective
			R21 or R27 o/c
	Left side audio on right screen missing	Failure in left side audio processing within the right screen audio processor/amplifier circuit	C16, C18 or C20 o/c
			C22 failed s/c
			IC2 pin 2, 12, 13 or19 open (no IIC)
			IC2 partially defective
			IC3 pin 7 open
			IC3 partially defective
			R16 or R24 o/c
	Right side audio on right screen missing	Failure in right side audio processing within the right screen audio processor/amplifier circuit	C15, C19 or C21 o/c
			C23 failed s/c
			IC2 pin 1, 12, 13, 18, open (no IIC)
			IC2 partially defective
			IC3 pin 6, open
			IC3 partially defective
			R17, R25 o/c
	Audio signal not reaching rear shelf speakers (headphones OK)	Channel select signal not being relayed from control module	IC11 pin3 open, dry jointed, output failed
			IC19 pin 9 output failed
			LK4 defective
			TR7 defective
	Left screen audio not reaching rear shelf speakers (headphones, right screen audio OK)	Channel select signal for left screen audio not being relayed from control module	IC11 pin3 output failed high
			R102 defective
			TR7 failed high (>6 V)
	Right screen audio not reaching rear shelf speakers (headphones, right screen audio OK)	Channel select signal for right screen audio not being relayed from control module	IC11 pin3 output failed low
			TR7 failed o/c
	Unable to adjust audio controls: treble, bass etc. on right screen. OSD OK.	No IIC clock signal to right audio processor chip	IC2 pin12 and/or 13 open.
		Right screen audio processor IC2 not working	C28 open
			IC2 pin 15 open (no 9 V)
			IC2 is defective
	Unable to adjust audio controls: treble, bass etc. on left screen. OSD OK.	No IIC clock signal to right audio processor chip	IC5 pin 12 and/or 13 open
		Left screen audio processor IC5 not working	C30 open
			IC5 pin15 open (no 9 V)
			IC5 defective

4. Complete repairs to the control module. Ensure that the repaired items are clean.
5. Reassemble the control module by performing the dismantling procedure described above in reverse.
6. Retest the module as described in section A-3

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D. Reference

General Description:

The control module is central to the Entertainment system. It interprets and implements commands entered by the user using the system's infrared remote control. These commands are relayed to the control module via the system's infrared sensors mounted in the screen modules. It also distributes power to the system and detects the vehicle's ignition state via a sense wire running from CN1 to the vehicle's ignition switch. This enables it to limit battery drain whilst the vehicle is not in use.

The control module receives audio and video inputs from the DVD Player via connector CN1 and from the vehicle's TV tuner (if fitted) via connector CN2. It is also able to receive a further audio/video input and supply a low-level two-channel audio output via CN3.

Technical Description:

A micro-controller in the Control Module supplies and controls the power to the system via an I^2C bus. On receipt of a *power-on* command from the Infrared Controller it performs a simple system check and then sends commands to other parts of the system to bring them on line.

When a screen has been selected using the infrared remote control the Control Module identifies the selected screen and displays on it a menu providing the user with access to the functions detailed below:

- Independent switching of three Audio-Visual inputs (DVD, TV and AUX)
- Video manipulation (Colour, brightness, contrast and aspect ratio of the display.)
- Audio processor (Bass, Treble and Volume)
- On-Screen instructions language selection
- Switch on/off individual screen displays

The Control Module also determines which media source has been routed to the selected screen and relays commands in the appropriate protocol.

For example if, while Screen A is displaying the DVD transmission, an infrared play command is detected at screen A, it would be captured, stored and relayed to the DVD in the DVD's Infrared protocol. If screen B is displaying a TV transmission the play command would be transmitted in the vehicle's TV tuner infrared protocol.

A non-volatile memory stores the display instruction language in use and the current Audio and Video settings for each output channel. These settings are reloaded on power-up with the exception of the audio volume level, which defaults to a low state.

Support equipment that has been powered off is detected by the lack of video sync pulse. This can be caused by auto shutdown after extended pause mode. When this happens the module responds by transmitting a power-on command to the support equipment until it is ready to accept it and power up. The supply of the video sync pulse then resumes and the module stops transmitting the power-on command.

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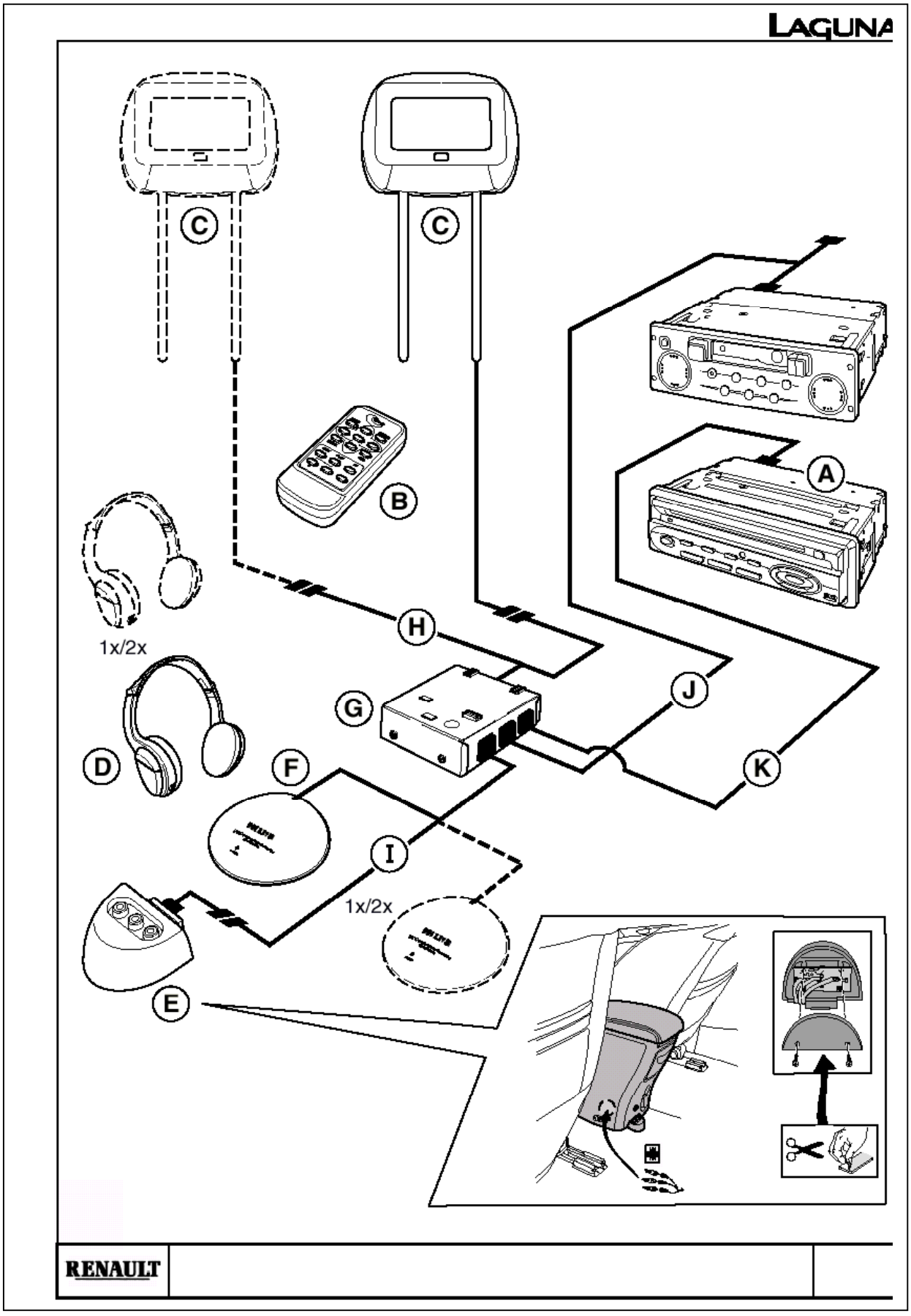
Connection Diagram



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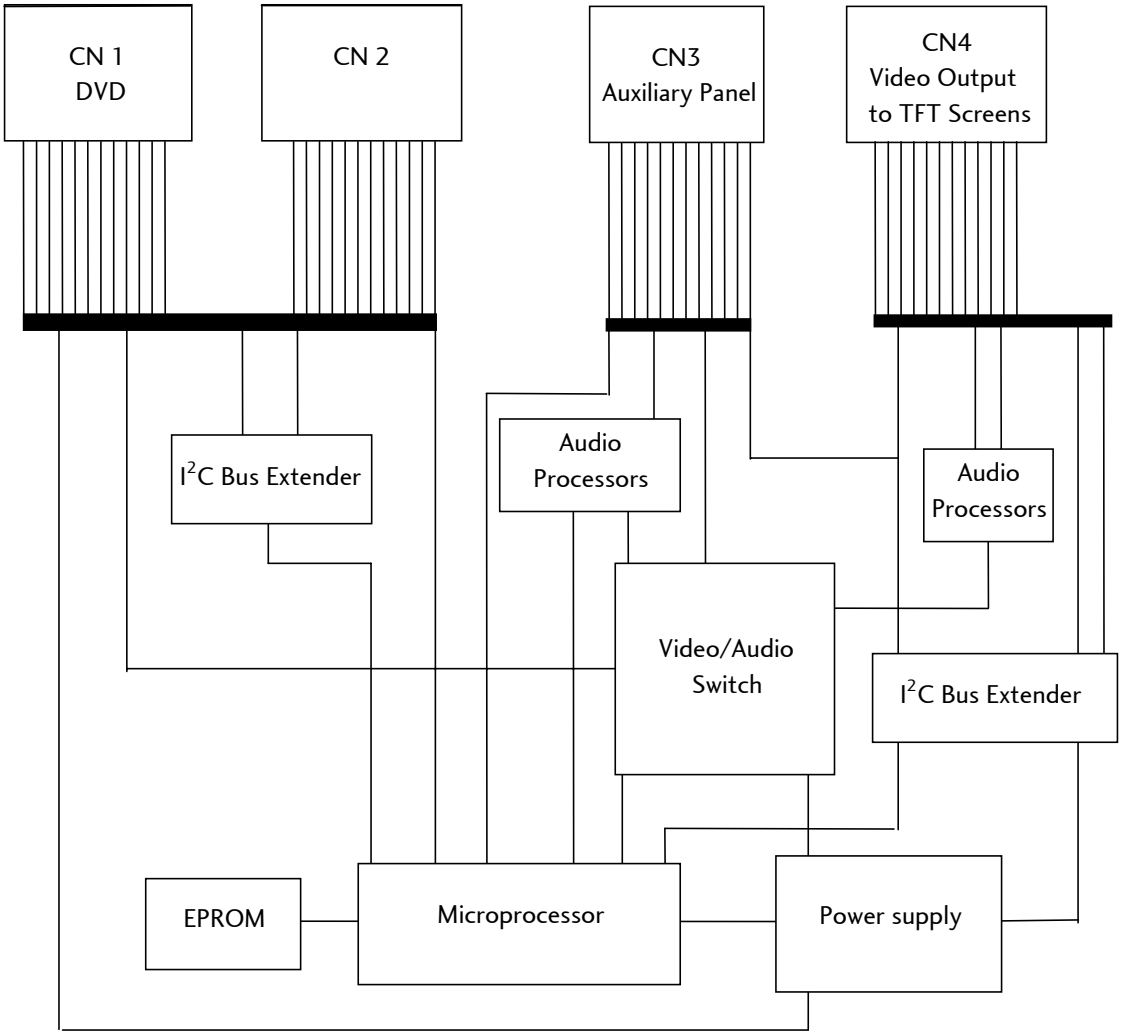

Functional Diagram

Analogue Audio and Video signals:

Quad OP amps IC7 & 19 (if fitted) are used to reduce any ground noise from the Vehicle by employing a "Floating" audio ground that is referenced from the media devices ground. Audio signals from these devices along with the corresponding CVBS signals are applied to IC1 (I^2C controlled AV Switch matrix). Audio signals are routed through this device to the relevant audio processors IC2/5 and then on to the Headphone amplifiers IC3/4

Video signals from IC1 are buffered by IC10 and supplied to the relevant LCD module.

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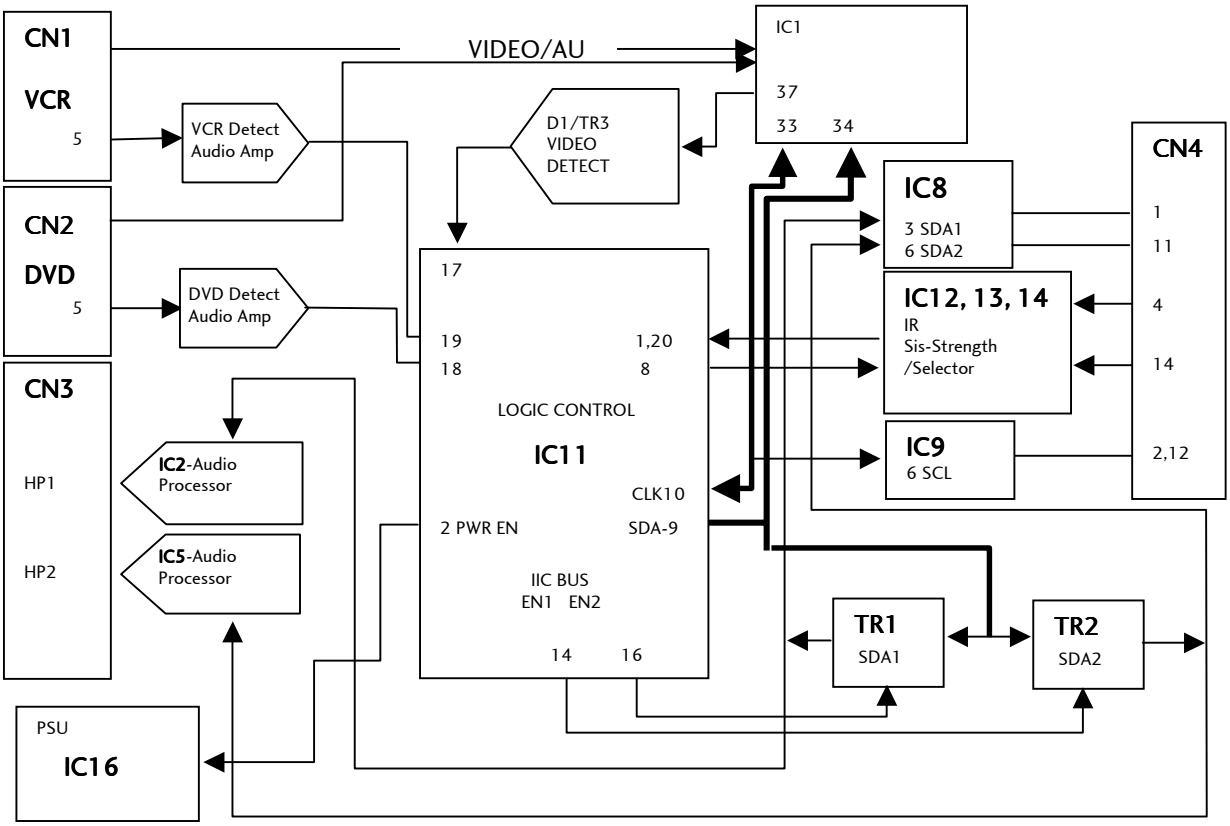
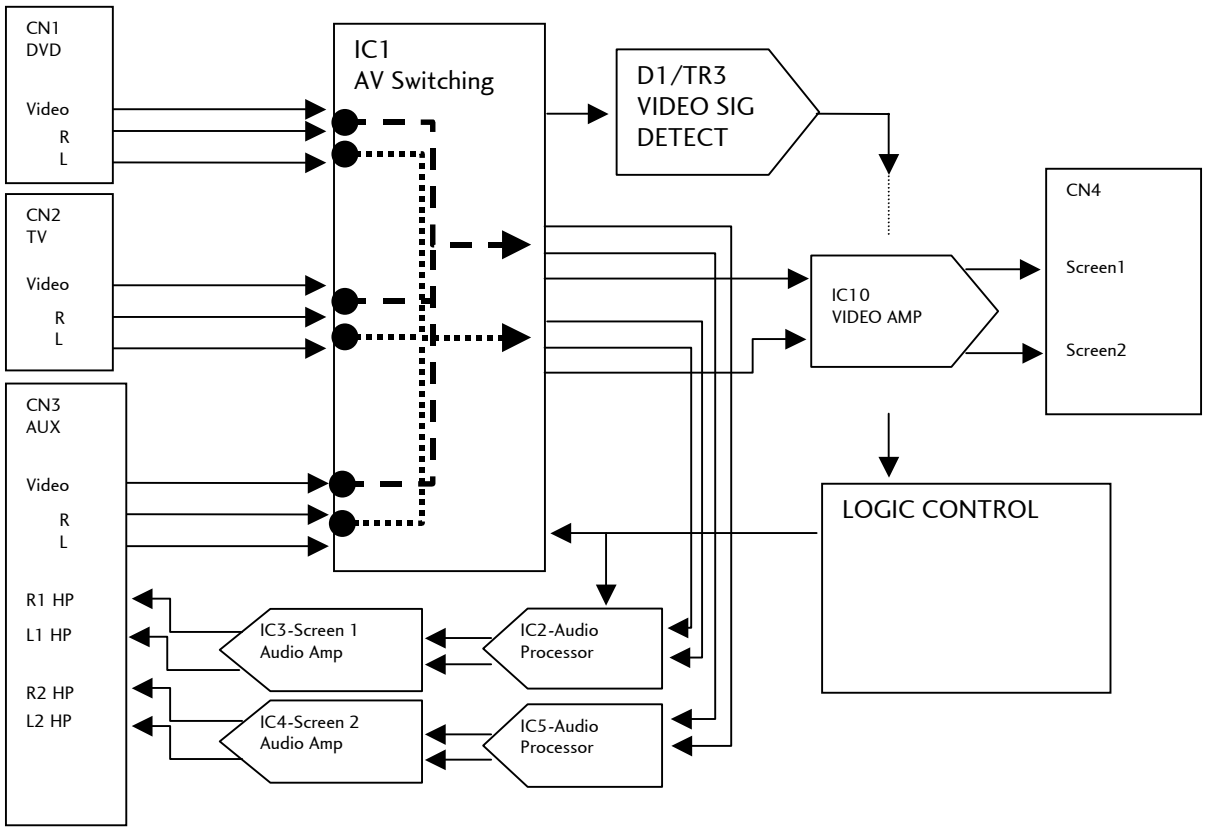


Control Signal Block



Router Signal Block Diagram

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Control Module pcb Top

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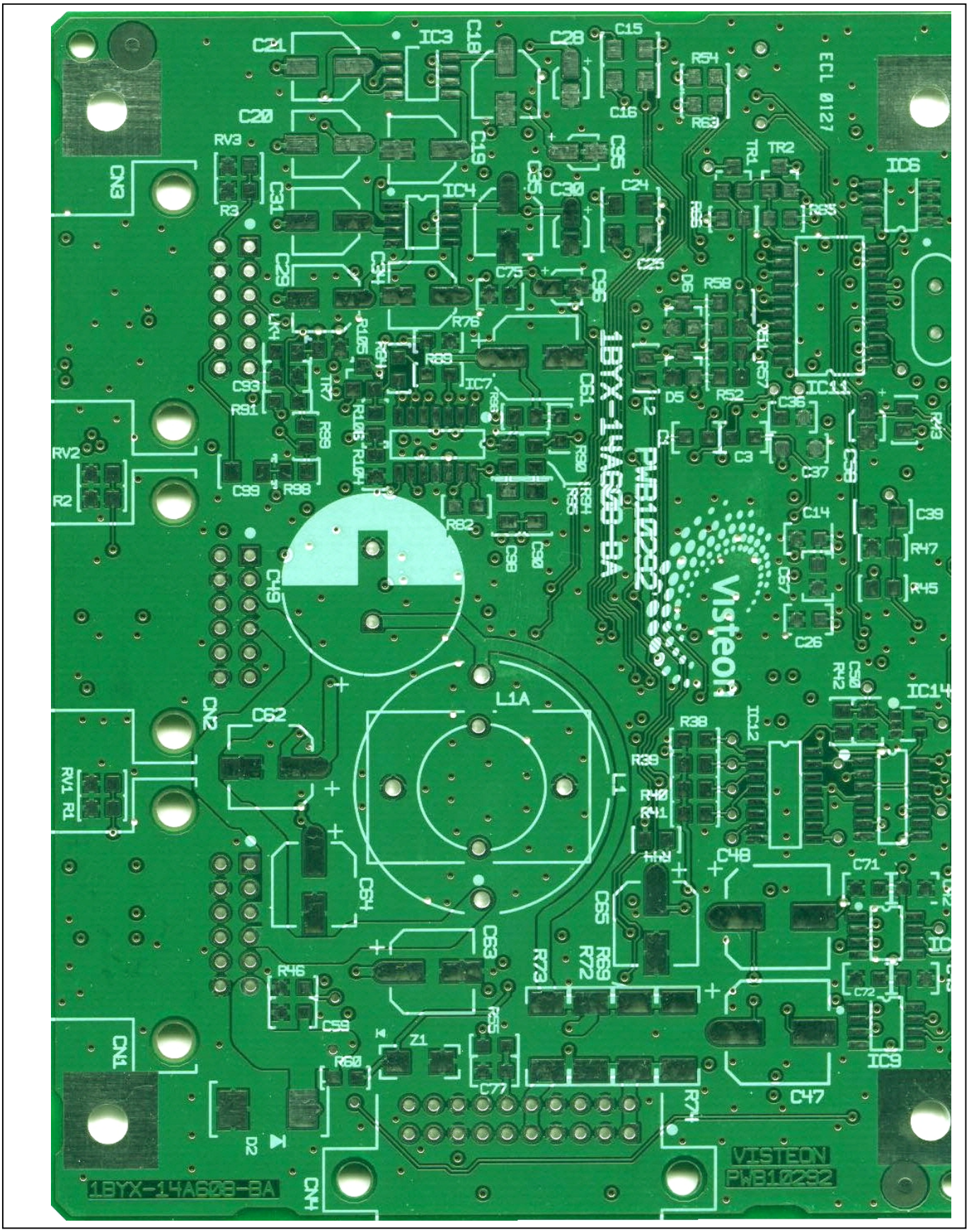

Top View of the Control Module pcb Detailing Circuit Reference Nos.

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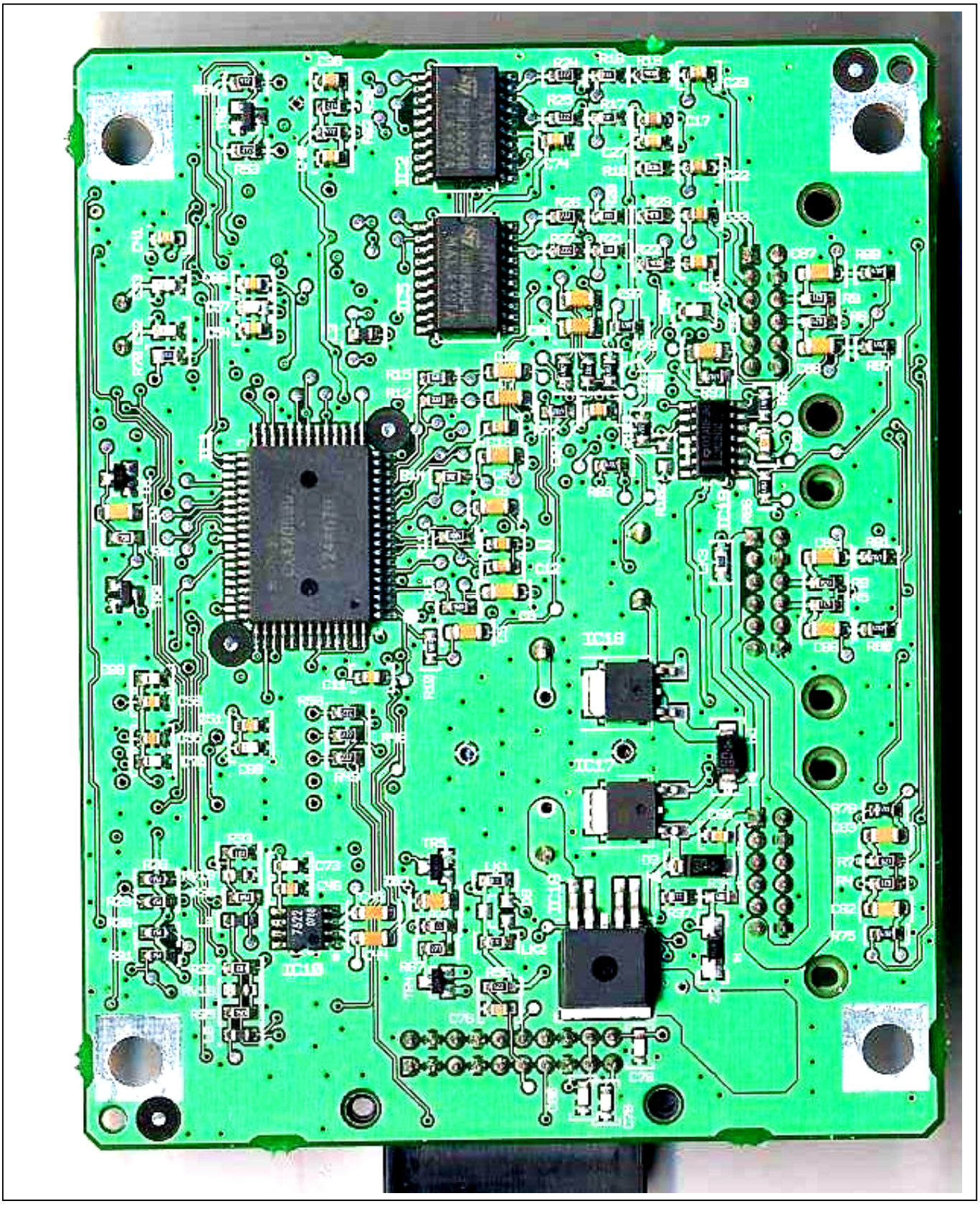

Control Module pcb Bottom

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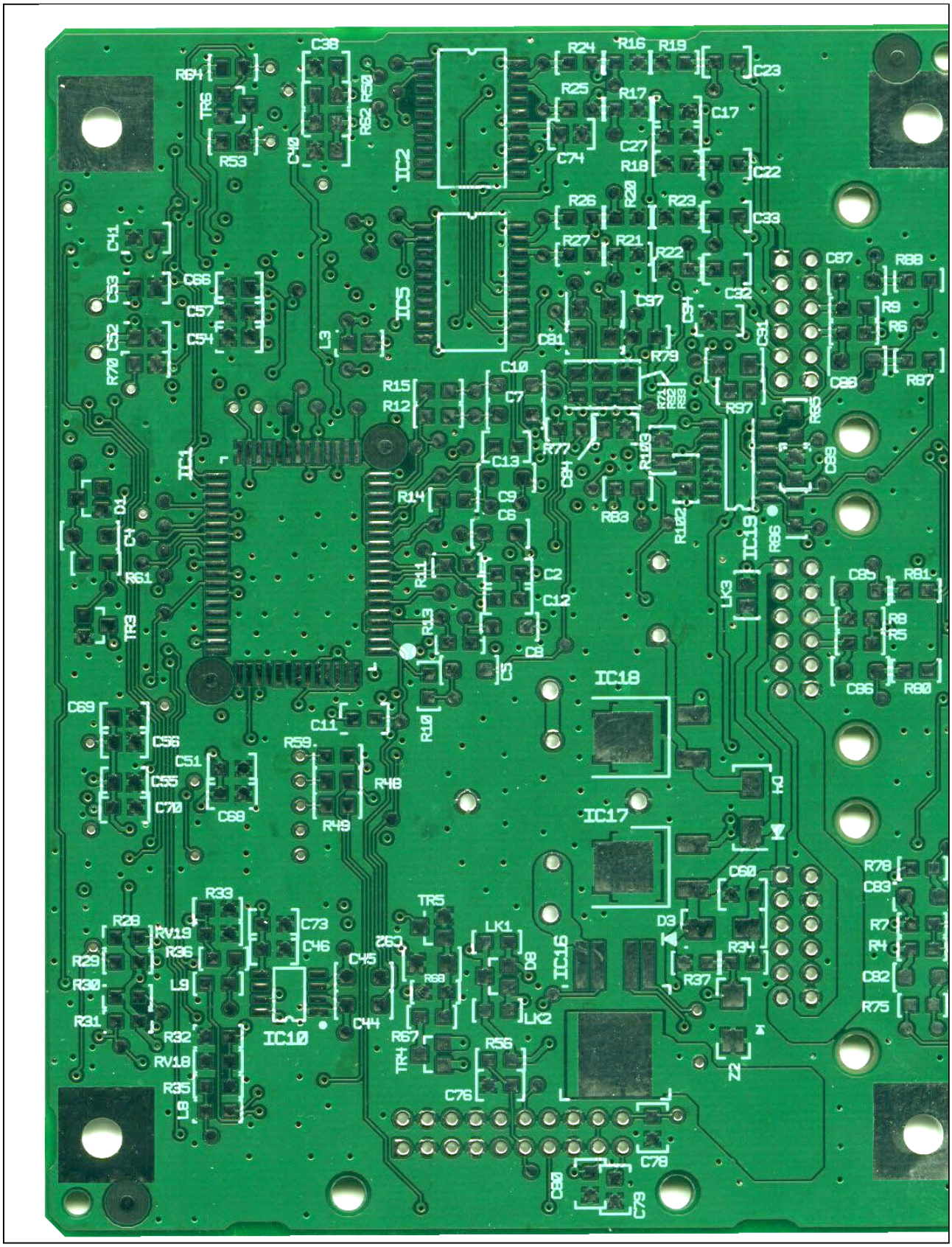

Bottom View of the Control Module PCB Detailing Circuit Reference Nos.

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Connector Details

CN 1 DVD	Circuit Function	To
1	Not used	Not used
2	Infrared Gnd	DVD
3	DVD enable	DVD
4	Not used	Not used
5	Infrared +	DVD
6	Not used	Not used
7	Video +	DVD
8	Video Gnd	DVD
9	Audio R+	DVD
10	Audio L+	DVD
11	Audio ground	DVD
12	Ground	Belden 9539

CN2	Function	To	
		Laguna Espace	Scenic
1	Accessory	Radio Ignition	?
2	Infra Red-	?	?
3	Not used	Not used	Not used
4	Not used	Not used	Not used
5	Not used	Not used	Not used
6	Main Power + 12 V	Battery	?
7	Not used	Not used	Not used
8	Not used	Not used	Not used
9	Not used	Not used	Not used
10	Not used	Not used	Not used
11	Not used	Not used	Not used
12	Power ground	?	?

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Connector Details Continued

CN3 Aux Panel	Function	To
1	Audio R out Ch1	Aux Panel
2	Audio L out Ch1	Aux Panel
3	Not used	Not used
4	Audio out R Ch2	Aux Panel
5	Audio out L Ch2	Aux Panel
6	Power Out	Aux Panel
7	Video + in	Aux Panel
8	Video ground	Aux Panel
9	Audio in R	Aux Panel
10	Audio in L	Aux Panel
11	Audio ground	Aux Panel
12	Ground	Aux Panel

Connector Details Continued

CN4 TFT Screens		Function	To
Section 1	1	XSDA I^2C data bus	CN 5-1
	2	XSCL Sync Clock I^2C	CN 5-2
	3	Ground/Screen	CN 5-3
	4	Infrared Sense in	CN 5-4
	5	5 V IR supply out	CN 5-5
	6	LCD Power +12 V	CN 5-6
	7	Video Out	CN 5-7
	8	LCD Video gnd	CN 5-8
	9	Backlight Ground	CN 5-9
	10	Backlight +12 V	CN 5-10
Section 2	11	XSDA IIC data bus	CN 15-1
	12	XSCL Sync Clock IIC	CN 15-2
	13	Ground/Screen	CN 15-3
	14	Infrared Sense in	CN 15-4
	15	5 V IR supply out	CN 15-5
	16	LCD Power +12 V	CN 15-6
	17	Video Out	CN 15-7
	18	LCD Video gnd	CN 15-8
	19	Backlight Ground	CN 15-9
	20	Backlight +12 V	CN 15-10

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MCB1000_TOP_LEVEL_SCHEMATIC

NO. MS-XXXX-3458-XX

DATE	LET	REVISIONS	CG	MAN	CK	APP
01.03.01	01	First Revision for Checking.				
09.03.01	01	Second Revision for EMC/ECAD Review				
12.03.01		CN5 deleted. Pinouts on CN4 frigged to work with wrong Visula pinouts. I2C_BUFFER and VIDEO_BUFFER FUBS added for ECAD clarity.				
12.03.01		AUDIO1_GND,AUDIO2_GND & AUDIO3_GND added.				
12.03.01		IC6 now chosen to be 24C16 with correct P/N.				
13.03.01		Mods to POWER_SUPPLY fub.				
14.03.01		Mods to POWER_SUPPLY fub. Mods to AUDIO_OUTPUT(Sheet5)fub				
15.03.01		CN3 PKG_TYPE corrected to as per CN1,CN2. POWER_SUPPLY FUB mod'd Notes added for clarification.				
16.03.01		AUDIO_SW Fub mod'd. TP44,TP45 added. AUDIO1_GND connect, to IR_I/F fub deleted and reconn to AV_SW fub. CN3 PIN1&2 are corrected to be O/Ps IR_INTERF. Fub mod'd.				
19.03.01		POWER_SUPPLY fum mod'd. AV_SWITCH BLOCK mod'd				
23.03.01		POWER_SUPPLY fub mod'd. SCL line added into I2C_BUFFER fub. SCL,SDA1,SDA2 lines added into AUDIO_OUTPUT fub.				
27.03.01		AV_SWITCH block mod'd PSU_BLOCK mod'd.				
30.03.01		Notes added to VIDEO_BUFFER.				
02.04.01		IC6 pin 7 now GND'd according to Fairchld Datasheet. POWER_SUPPLY fub mod'd. BATTF deleted from POWER_SUPPLY fub.				
09.04.01		Entire Design has GND for all grounds. All FUBs mod'd for this. MECH_DETAIL FUB mod'd.				
25.05.01		AV_SWITCH and AUDIO_OUTPUT BLOCK FUBS modified to fix GND and Alternator whine noise issues.				
08.06.01		AV_SWITCH BLOCK mod'd. VOLVO_AUDIO_SEL_DRIVE signal added. PSU_BLOCK mod'd.				
14.06.01		Release to ECAD for AUDIO & VOLVO mods.				
19.06.01		AV_SWITCH fub modified.				
21.06.01		AV_SW Block mod'd.				
19.07.01		CN1 pin 6 redrawn as input.				
30.10.01		Minor Mop up of Notes; AV_Switch_block modified.				

TO AUXILLIARY PANEL

CN3 12 GND
CN3 11 AUDIO3_GND
CN3 10 LIN3
CN3 9 RIN3
CN3 8 GND
CN3 7 V3
6 CN3 ACC_VIA_DIODE
5 CN3 L2
4 CN3 R2
CN3 3 IR0
2 CN3 L1
1 CN3 R1

L2 (Output Signal)
R2 (Output Signal)
L1 (Output Signal)
R1 (Output Signal)

AV_SWITCH BLOCK
(REF. SHEET 2)
AV_SWITCH

AUDIO_OUTPUT
(REF. SHEET 5)
AUDIO_VIDEO_OUTPUT

REF SHEET 6
I2C_BUFFER

REF SHEET 7
VIDEO_BUFFER

Temporary PWB Pin num: / Actual Pin num:

XSDA1 CN4-20 CN4-1
XSCL CN4-19 CN4-2
GND 18-CN4 CN4-3
IR1 17-CN4 CN4-4
SEL1 CN4-16 CN4-5
VFILTER CN4-15 CN4-6
GND 14-CN4 CN4-7
VIDEO_OUT1 CN4-13 CN4-8
GND 12-CN4 CN4-9
VFILTER CN4-11 CN4-10

TO RIGHT LCD INTERFACE BOARD

XSDA2 CN4-10 CN4-11
XSCL CN4-9 CN4-12
GND 8-CN4 CN4-13
IR2 7-CN4 CN4-14
SEL2 CN4-6 CN4-15
VFILTER CN4-5 CN4-16
GND 4-CN4 CN4-17
VIDEO_OUT2 CN4-3 CN4-18
GND 2-CN4 CN4-19
VFILTER CN4-1 CN4-20

TO LEFT LCD INTERFACE BOARD

Pin20 Pin10 / Pin11 Pin1
PWB Bottomside View of CN4

TO (TBE) DVD

CN2-12 GND
CN2-11 AUDIO2_GND
CN2-10 LIN2
CN2-9 RIN2
CN2-8 GND
CN2-7 V2
CN2-6 VBAT
5-CN2 DVD_REMOTE_CTRL
4-CN2 SBATT
3-CN2
CN2-2 DVD_SENSE
CN2-1 ACC

TO JVC VCR OR NECVOX DVD

CN1-12 GND
CN1-11 AUDIO1_GND
CN1-10 LIN1
CN1-9 RIN1
CN1-8 GND
CN1-7 V1 VBAT
CN1-6
5-CN1 VCR_REMOTE_CTRL
4-CN1 SBATT
3-CN1
CN1-2 VCR_SENSE
CN1-1 ACC

IR_INTERFACE BLOCK
(REF. SHEET 3)
IR_INTERFACE

POWER_SUPPLY BLOCK
(REF. SHEET 4)
POWER_SUPPLY

Pin1 Pin7 / Pin6 Pin12
PWB Bottomside View of CN1,CN2 & CN3

NOTE: R70 NOT FITTED FOR VOLVO!

IC11 87LPC764
IC6 NM24C16UEM8

XT1 RESON,XTAL,6.29MHZ,HC-49/U-S

ENFIELD MECH
MECH_DETAIL_TOP

EMC NOTES:

1. Ensure IC11 is provided with an MGP.
2. Place C66,C54,C57,C52,C53,R70 close to IC11 and with their GND points tied to the MGP. Ensure that these GND points are directly connected to the MGP; not via GND loop branches.
3. Place XT1 near IC11.
4. Introduce GUARD GND tracks between SCL,SDA and other adjacent signal tracks.
5. Starpoint the +5V lines from the BULK capacitor C64.
6. Place all decoupling caps near power pins of ICs.
7. Ensure that no components are present under the footprint of L1 or L1a (see POWER_SUPPLY BLOCK) or within a clearance gap of 0.03 inches around the L1 or L1a components.
8. COMMON all types of GND (GNDS etc..) onto a SINGLE GROUND PLANE.
9. Introduce GUARD GND tracks between audio,video & IR sigs and other adjacent signal tracks. Tracks affected are LIN1&2, RIN1&2, L1&2, R1&2 LOUT1&2, ROUT1&2 and also IR0,1 and 2.
10. All GROUNDS(GNDS, GNDVOUT..etc) shall be made a SINGLE GROUND PLANE.
11. Refer to SHEET4 for TRACK CURRENTS.

OTHER NOTES:

1. R51, R52, R65 & R66 NOT FITTED.

PART MUST COMPLY WITH SPECIFICATION WSS-M99P9999-A1
TO HELP SAFEGUARD HEALTH, SAFETY AND THE ENVIRONMENT

Visteon PRODUCT ENGINEERING

☐ COMPUTER ☐ MANUAL "E" SIZE

CG COLUMN = GRAPHIC DATA LEVEL ORIGINAL WHEN RED

DO NOT SCALE ABOVE SCALE FOR REFERENCE ONLY

REF PROJECT/SCH/SCH_NAME

DRAWN BY	DATE	CHECKED	SCALE	APPROVED
DRAWN_BY	DRWG_DATE		NONE	ENGR_NAME

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN ☐ INCHES ☐ MILLIMETERS
MACHINED DIM. +/-
ANGULAR DIM. +/-
3RD ANGLE PROJECTION
STAMPED DIM. +/-

MATERIAL APP DATE

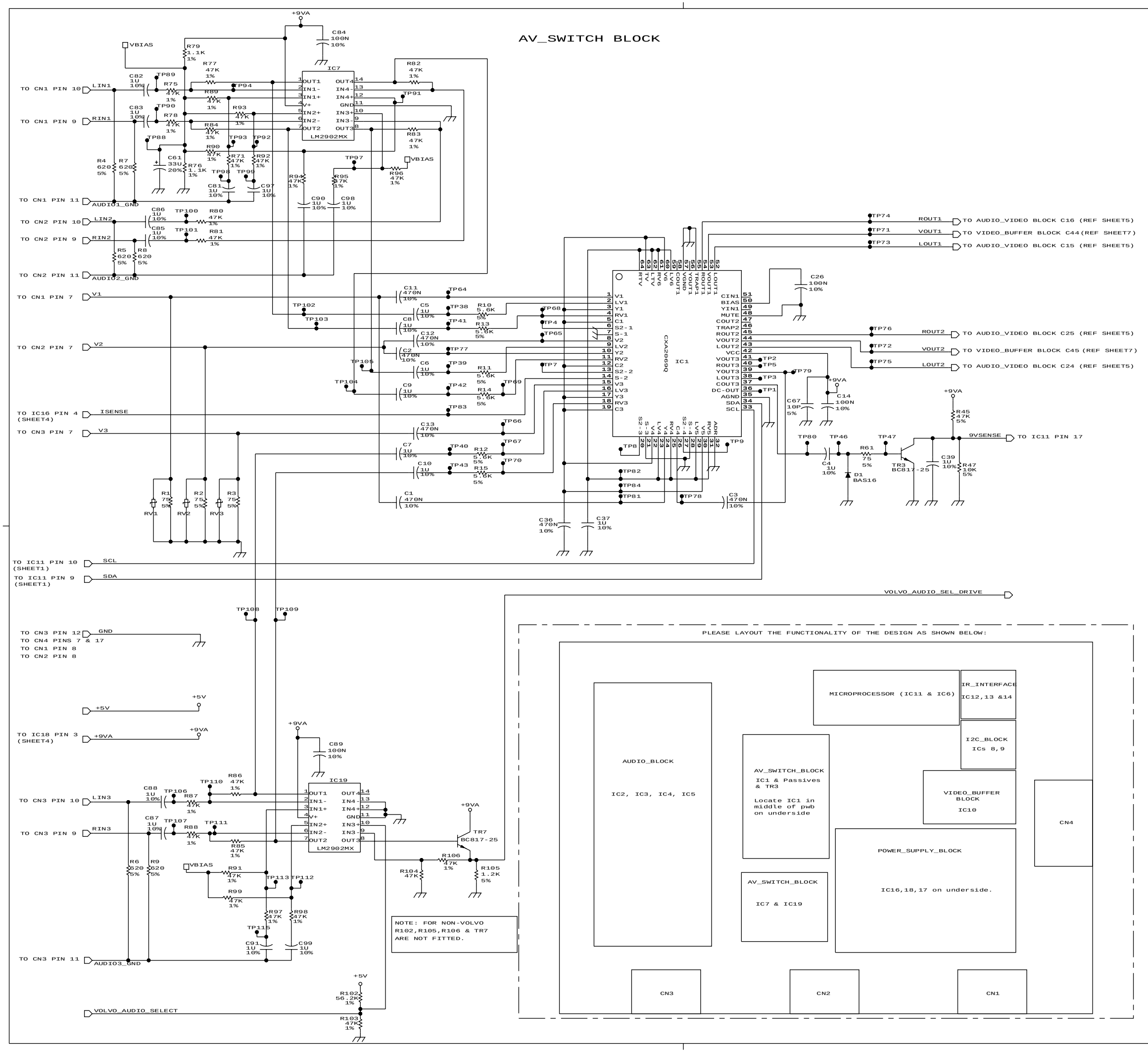
NAME SKETCH - WIRING DIAGRAM
DRAWING_NAME

NO. MS-XXXX-3458-XX

PWB_NUMBER-10292 PWB_PLANT_CODE

POWERVIEW

AV_SWITCH BLOCK



PLEASE LAYOUT THE FUNCTIONALITY OF THE DESIGN AS SHOWN BELOW:

NO.	MS-XXXX-3458-XX				
DATE	LET	REVISIONS	CG	MAN	CK	APP
01.03.01		First Revision for Checking				
12.03.01		Placement Notes mod'd after review.				
12.03.01		AUDIO1..AUDIO3_GND added. C61,C90,C91 added.				
12.03.01		IC7 & IC19 now correct components.				
16.03.01		C89,90,91 changed to 16V to minimise size.				
19.03.01		R79 is now 10K 5%. C61 is now 33uF.				
27.03.01		TP78 ADDED.				
09.04.01		All Grounds are now GND				
25.05.01		IC7 & IC19 reconfigured to be differential amp buffer for Audio Inputs.				
08.06.01		Test points added to circuit around IC7 & IC19.				
19.06.01		C89 is now connected to gnd plane earth. TP95,TP96 deleted - no space.				
21.06.01		TP87, TP114 deleted - no space. R102 changed to 56.2K 1%.				
30.10.01		R105 is now 1.2K.				

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Visteon **PRODUCT ENGINEERING**

☒ COMPUTER ☐ MANUAL "E" SIZE

CG COLUMN = GRAPHIC DATA LEVEL ORIGINAL WHEN RED

ENGLISH A B C D E F
METRIC 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

DO NOT SCALE — ABOVE SCALE FOR REFERENCE ONLY

REF PROJECT/SCH/SCH_NAME

DRAWN BY	DATE	CHECKED	SCALE	APPROVED
	YYMMDD		NONE	

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN
☐ INCHES ☐ MILLIMETERS
MACHINED DIM. +/-
ANGULAR DIM. +/-
3RD ANGLE PROJECTION
STAMPED DIM. +/-

MATERIAL	APP
	DATE

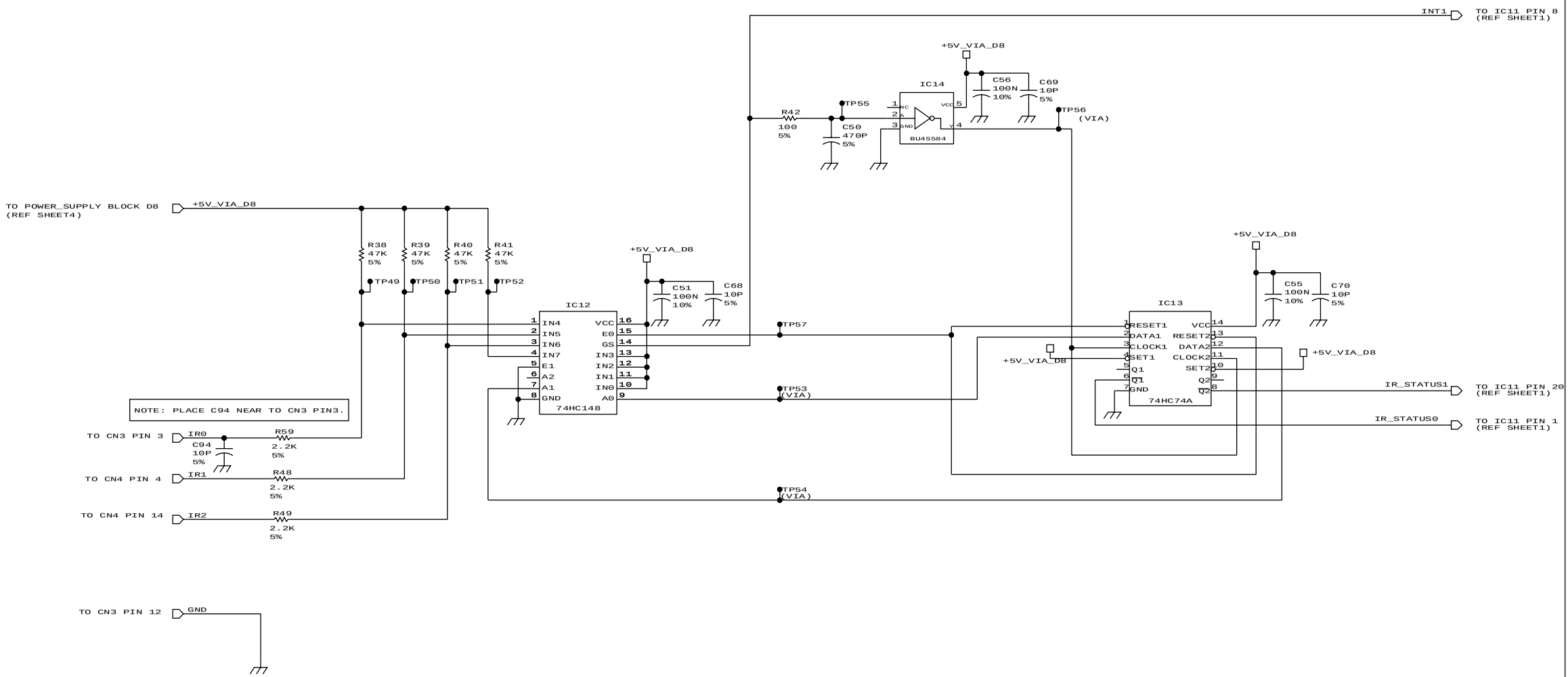
NAME SKETCH - WIRING DIAGRAM (DRAWING_NAME)

NO. MS-XXXX-3458-XX

PWB PLANT CODE:

TEMPLATE/FRM

IR_INTERFACE BLOCK



NO.	MS-XXXX-3458-XX				
DATE	LET	REVISIONS	CG	MAN	CK	APP
01.03.01		First Revision for Checking				
12.03.01		ECAD review. No change in this PUB.				
16.03.01		C94 added.				

PART MUST COMPLY WITH SPECIFICATION WSS-M99P9999-A1
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Visteon PRODUCT ENGINEERING

☑ COMPUTER ☐ MANUAL "E" SIZE

CG COLUMN = GRAPHIC DATA LEVEL ORIGINAL WHEN RED

ENGLISH 1 2 3 4 5 6
METRIC 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160
DO NOT SCALE ABOVE SCALE FOR REFERENCE ONLY

REF PROJECT/SCH/SCH_NAME

DRAWN BY	DATE	CHECKED	SCALE	APPROVED
	YYMMDD		NONE	

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN ☐ INCHES ☐ MILLIMETERS
MACHINED DIM. +/-
ANGULAR DIM. +/-
3RD ANGLE PROJECTION
STAMPED DIM. +/-

MATERIAL | APP | DATE

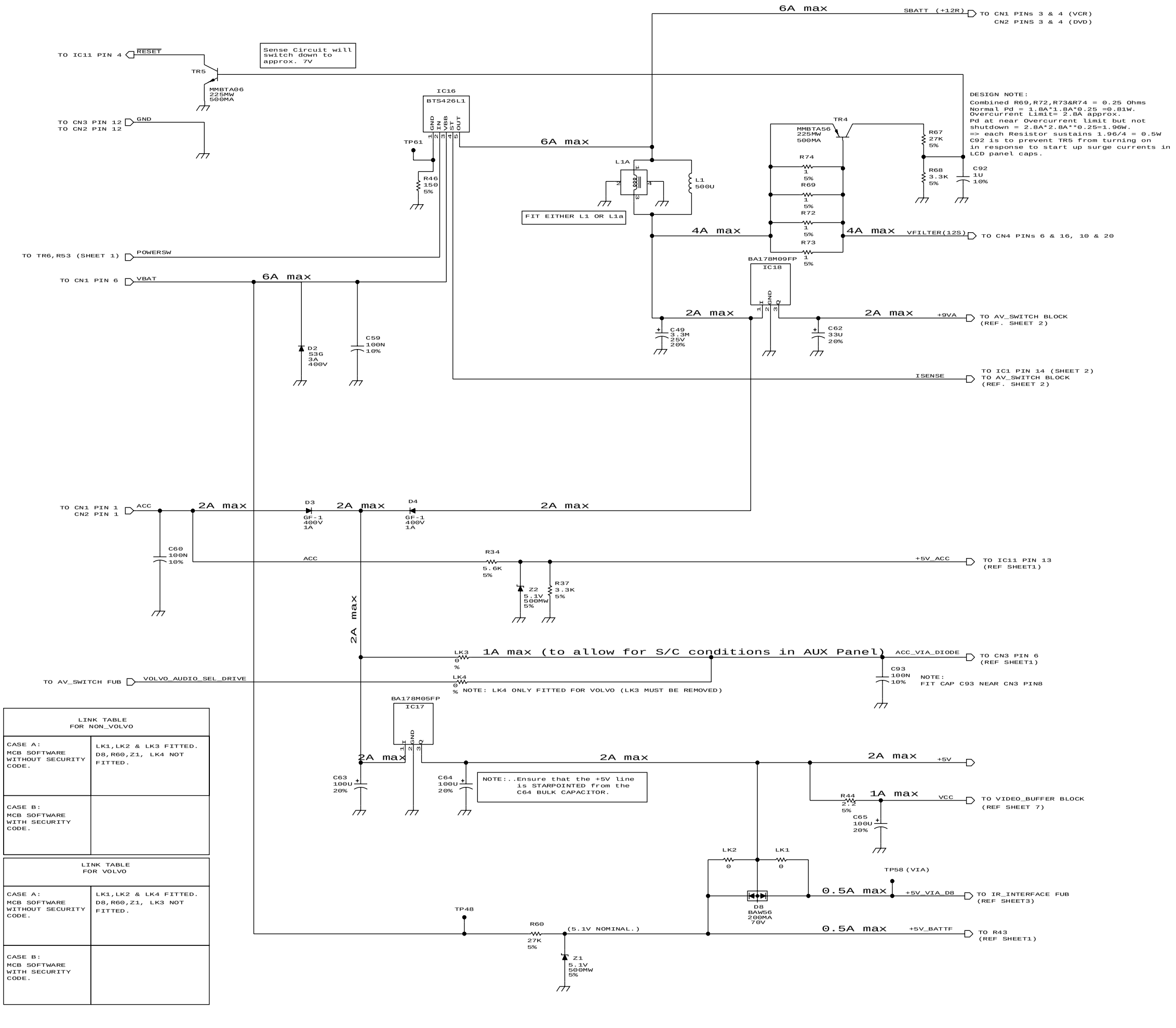
NAME SKETCH - WIRING DIAGRAM (DRAWING_NAME)

NO. MS-XXXX-3458-XX

PWB PLANT CODE:

POWER.FRM

POWER_SUPPLY BLOCK



LINK TABLE FOR NON_VOLVO	
CASE A: MCB SOFTWARE WITHOUT SECURITY CODE.	LK1,LK2 & LK3 FITTED. D8,R60,Z1, LK4 NOT FITTED.
CASE B: MCB SOFTWARE WITH SECURITY CODE.	

LINK TABLE FOR VOLVO	
CASE A: MCB SOFTWARE WITHOUT SECURITY CODE.	LK1,LK2 & LK4 FITTED. D8,R60,Z1, LK3 NOT FITTED.
CASE B: MCB SOFTWARE WITH SECURITY CODE.	

NO. MS-XXXX-3458-XX

DATE	LET	REVISIONS	CG	MAN	CK	APP
01.03.01		First Revision for Checking				
12.03.01		ECAD review C61 2200uF deleted owing to space limitation.				
13.03.01		C92 added to create 'SOFT START' for overcurrent sense. Track Currents added. C93 added.				
14.03.01		IC17&18 edited to show correct pkg type.				
15.03.01		All Tie-points removed as they are treated as additional components in Visula. Notes added for clarification.				
16.03.01		TP58 added.				
19.03.01		PIN 2&4 of L1a now conn. to GNDS.				
23.03.01		BATTF FUB conn. added.				
27.03.01		C63,64,65 are now 100uF 35V.				
02.04.01		R71 removed. BATTF label deleted.				
09.04.01		All Grounds are now GND Text changes for clarification.				
08.06.01		VOLVO_AUDIO_SEL_DRIVE signal added.				
14.06.01		Text added for clarification.				

PART MUST COMPLY WITH SPECIFICATION WSS-M99P9999-A1
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Visteon PRODUCT ENGINEERING

☑ COMPUTER ☐ MANUAL "E" SIZE

CG COLUMN = GRAPHIC DATA LEVEL ORIGINAL WHEN RED

ENGLISH 1 2 3 4 5 6
METRIC 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

DO NOT SCALE ABOVE SCALE FOR REFERENCE ONLY

REF PROJECT/SCH/SCH_NAME

DRAWN BY	DATE	CHECKED	SCALE	APPROVED
	YYMMDD		NONE	

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN ☐ INCHES ☐ MILLIMETERS
MACHINED DIM. +/-
ANGULAR DIM. +/-
3RD ANGLE PROJECTION
STAMPED DIM. +/-

MATERIAL | APP | DATE

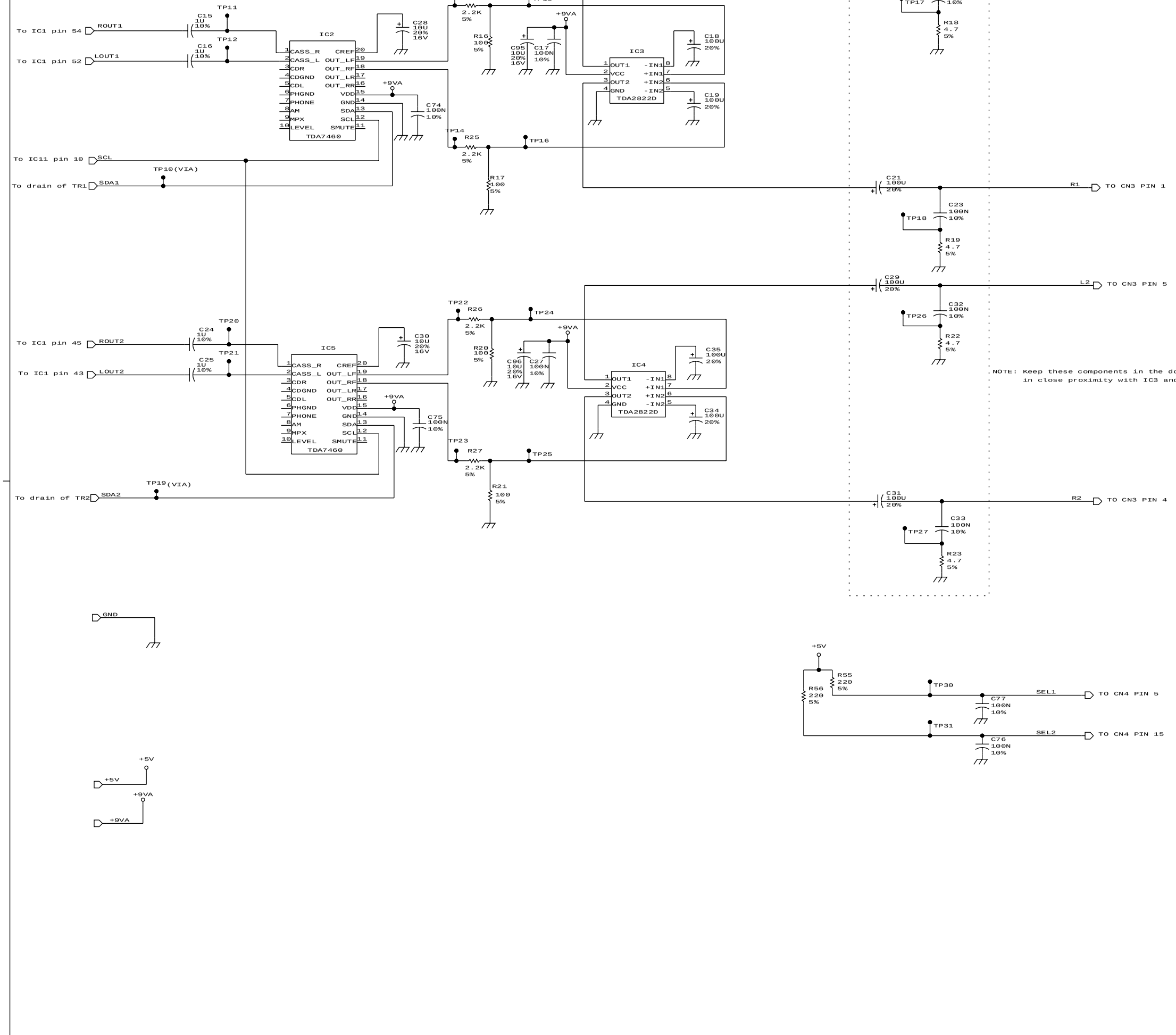
NAME SKETCH - WIRING DIAGRAM (DRAWING_NAME)

NO. MS-XXXX-3458-XX

PWB PLANT CODE:

POWERSCHM

AUDIO_OUTPUT BLOCK



NO.	MS-XXXX-3458-XX				
DATE	LET	REVISIONS	CG	MAN	CK	APP
01.03.01		First Revision for Checking.				
12.03.01		IC8,IC9 Ckts transferred to I2C_FUB after ECAD review. IC10 Ckts transferred to VIDEO_BUFFER FUB after ECAD review to improve clarity in LAYOUT notes.				
14.03.01		C28&C30 now 16V parts.				
09.04.01		All Grounds are now GND				
25.05.01		Extra explanatory text added. 10uF caps added to supply pin of both IC3 & IC4.				

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ENGLISH 1 2 3 4 5 6
METRIC 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

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DRAWN BY	DATE	CHECKED	SCALE	APPROVED
	YYMMDD		NONE	

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MACHINED DIM. +/-
ANGULAR DIM. +/-
3RD ANGLE PROJECTION
STAMPED DIM. +/-

MATERIAL | APP | DATE

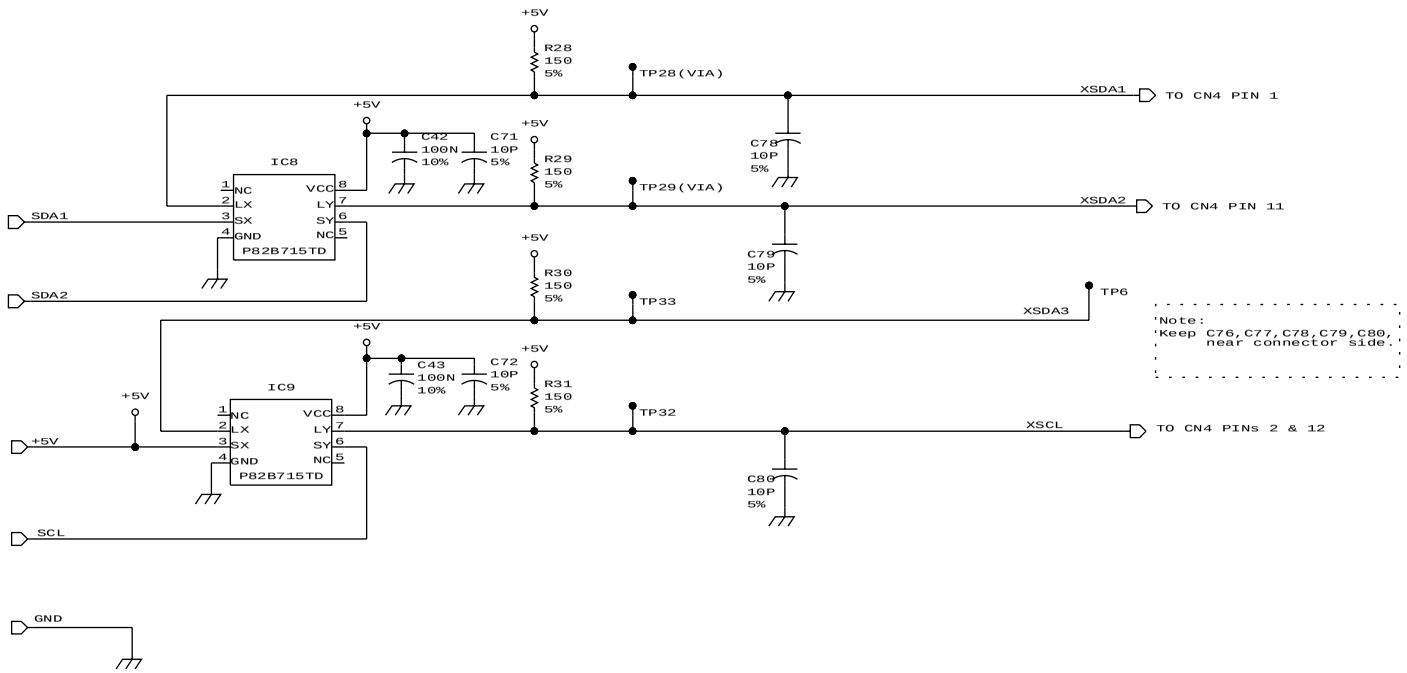
NAME SKETCH - WIRING DIAGRAM (DRAWING_NAME)

NO. MS-XXXX-3458-XX

PWB PLANT CODE:

POWERSYSEM

I2C BUFFER BLOCK



NO.	MS-XXXX-3458-XX				
DATE	LET	REVISIONS	CG	MAN	CK	APP
12.03.01		FUB created after ECAD review to allow clarity in ECAD layout.				
29.03.01		Text added for Notes.				
09.04.01		All Grounds are now GND.				

PART MUST COMPLY WITH SPECIFICATION WSS-M99P9999-A1
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Visteon PRODUCT ENGINEERING

☑ COMPUTER ☐ MANUAL "E" SIZE

CG COLUMN = GRAPHIC DATA LEVEL ORIGINAL WHEN RED

ENGLISH 1 2 3 4 5 6
METRIC 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

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REF PROJECT/SCH/SCH_NAME

DRAWN BY	DATE	CHECKED	SCALE	APPROVED
	YYMMDD		NONE	

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN
☐ INCHES ☐ MILLIMETERS
MACHINED DIM. +/-
ANGULAR DIM. +/-
3RD ANGLE PROJECTION
STAMPED DIM. +/-

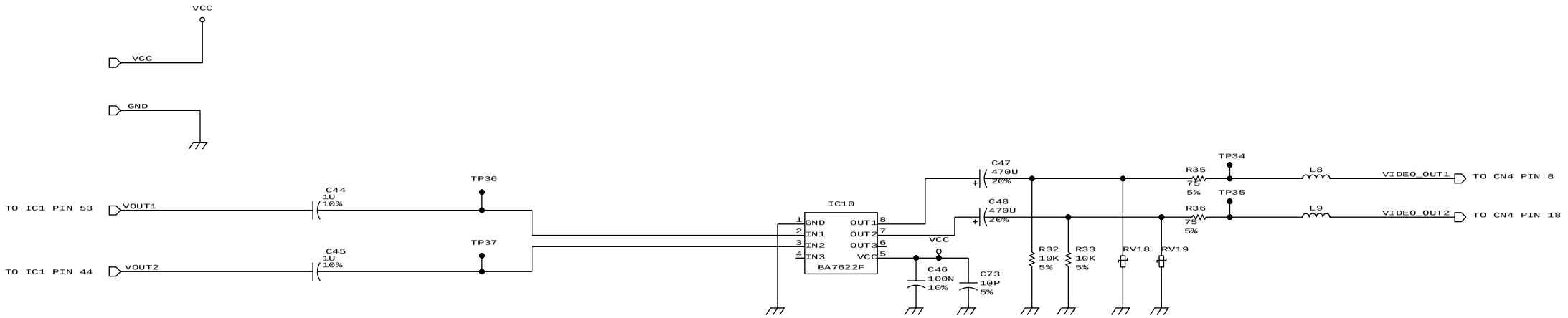
MATERIAL	APP
	DATE

NAME SKETCH - WIRING DIAGRAM
(DRAWING_NAME)

NO. MS-XXXX-3458-XX

PWB PLANT CODE:

TEMPLATE.FRM



NO.	MS-XXXX-3458-XX				
DATE	LET	REVISIONS	CG	MAN	CK	APP
12.03.01	01	PUB created to clarify ay-out partitioningafter ECAD review.				
30.03.01	01	MORE TEXT ADDED FOR NOTES,				
09.04.01	01	All Grounds are now GND				

PART MUST COMPLY WITH SPECIFICATION WSS-M99P9999-A1
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Visteon PRODUCT ENGINEERING

☒ COMPUTER ☐ MANUAL "E" SIZE

CG COLUMN = GRAPHIC DATA LEVEL ORIGINAL WHEN RED

ENGLISH 1 2 3 4 5 6
METRIC 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

DO NOT SCALE ABOVE SCALE FOR REFERENCE ONLY

REF PROJECT/SCH/SCH_NAME

DRAWN BY	DATE	CHECKED	SCALE	APPROVED
	YYMMDD		NONE	

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN
☐ INCHES ☐ MILLIMETERS
MACHINED DIM. +/-
ANGULAR DIM. +/-
3RD ANGLE PROJECTION
STAMPED DIM. +/-

MATERIAL

APP

DATE

NAME SKETCH - WIRING DIAGRAM
(DRAWING_NAME)

NO. MS-XXXX-3458-XX

PWB PLANT CODE:

POWER.FRM